



SOCIETY OF PHYSICS STUDENTS

An organization of the American Institute of Physics

Future Faces of Physics Award Proposal

Project Proposal Title	Future Faces of Physics with CSM SPS
Name of School	Colorado School of Mines
SPS Chapter Number	1287
Total Amount Requested	\$500.00

Abstract

The Colorado School of Mines chapter of SPS proposes an event where chapter members will travel to a local high school for a day to teach the students about science. SPS volunteers will engage with the students through exciting, hands-on demos and the students will complete worksheets about the concepts.

Proposal Statement

Overview of Proposed Project/Activity/Event

On the day of the event, we will travel to a local high school with a high proportion of students from disadvantaged and or underrepresented groups in physics. Our demos will be organized into stations for the event. The main topics are Optics, Vacuums, Mechanics, Fluids, Sound/Waves, Electricity, and Magnetism. To prepare for the day of the event, chapter members will be trained as “table leads” who will know how each demo functions and the scientific concepts behind them. These members will create several questions for their station that they believe represent the concepts presented during the demonstrations. The questions for all stations will be compiled into a worksheet that will be sent to the high school to be printed in advance. All other volunteering chapter members will be assigned amongst the stations as needed. This project is intended to get high school students excited about physics and about science in general. It is also meant to be something different from the typical day of class, demos that are beyond what the typical high school classroom could provide and that allow for more hands-on engagement. Another goal of the project is to try to encourage or even awaken interest in a career in science.

How Proposed Activity Promotes Physics Across Cultures

The high school that this event will take place at will be selected in part for its limited resources, particularly for demonstrating science to students. The chosen school will have many students considered minorities in the field, who are more likely to feel discouraged from viewing science as a possible future career. We as an SPS chapter want to show them how exciting science can be and talk with them about what studying to become a physicist is like. The aim of this event is to promote interest in physics and to help students from all backgrounds realize that they are capable of becoming a physicist. We believe that by encouraging and awakening students’ passions for science we are strengthening the local community in addition to the physics community. Our event also meets a need in the community because there are many students who may be interested in physics but some high schools simply don’t have the resources to fully accommodate that interest. Our chapter bringing a variety of physics demos to one of these schools will provide students with a new experience of science different from what they are used to and beyond what their school may be able to provide.

Plan for Carrying Out Proposed Project/Activity/Event

The Vice President of Outreach for the chapter will be in charge of planning the event within the chapter as well as with the high school. To monitor progress, the VP Outreach will meet with and communicate with the table leads regularly leading up to the event to make sure they are familiar with their station’s demos, how to properly explain the scientific concepts behind the demos to high school students, and with what will be happening on the day of the event. The administrators of the high school will ensure satisfactory participation for the event among their students. In the past, the teachers have used a sign-up sheet to decide which students will participate. Since the event will take place on a school day, we expect many students to participate throughout the day. In previous years, we have had around 20 SPS members that volunteer at the event. Volunteers will participate in packing the demos for transportation, set-up at the high school, presentation of the demonstrations throughout the day, then getting them back to their storage locations at the end of the day. Multiple chapter members have participated in this event

previously, as well as other outreach events, so they know the more complex demonstrations better than others, and they can help other volunteers with demos they are unfamiliar with. In preparation for the event, graduate students may also be consulted about more difficult demos if needed.

Project/Activity/Event Timeline

The FFoP event for this chapter typically occurs in late March to mid April. Working backwards, the week of the event the outreach officer will compile the questions written by the table leads into a worksheet then send the worksheet to the high school to print in advance. During the week of the event the outreach officer and table leads will also meet and conduct a practice run of the presentations for each station. The table leads will be given several weeks to come up with questions for their station and which demos they plan to bring. Around two months before the event, table leads will be selected so that the outreach officer can meet with each of them to discuss their responsibilities and the demos that are available to them so they can start formulating questions for the worksheet. Several weeks before this, members of the chapter will be asked to sign up as volunteers if interested. Volunteers will be asked when signing up if they are interested in being a table lead and if so for which station. Official planning of the event will begin with the start of the spring semester. This will include contacting the chosen high school to confirm that they are able to hold the event and deciding on a date as well as presenting the event to SPS members in the weekly meeting.

Activity Evaluation Plan

The chapter will gauge the success of the event in meeting the goal of promoting physics across cultures after it occurs by asking the participating high school teachers to collect feedback from their students about the event. By doing so, we will survey the responses from the students that participated. Positive feedback from the students, as well as the teachers and administrators, will tell us that the goal was met. If the students enjoyed the time they spent engaging with physics concepts and perhaps even have increased interest in pursuing the study of science when they go to college we can confidently say that we as an SPS chapter promoted physics across cultures and fulfilled a need in the community.

Budget Justification

In order to fulfill our goals for this event of giving high school students an engaging and more hands-on experience of physics and promoting physics across cultures, we need to make sure that we have a strong variety of demos that showcase the many facets of the field of physics and that these demos are in proper functioning condition. We plan to utilize the funds from this award to fix any broken or improperly functioning demos before the day of the event and to purchase any additional supplies that existing demos require. We also will use the funds to expand our ability to show the diverse range of physics to students through the purchase of new demos.